AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

Claim 1. (Currently Amended) A recombinant or isolated collagen binding integrin subunit α10 comprising essentially the amino acid sequence shown in SEQ ID No. 2 or SEQ ID No. 4, or homologues ~~homologues~~ or fragments thereof having essentially the same biological activity.

Claim 2. (Withdrawn) A process of producing a recombinant integrin subunit α10 comprising essentially the amino acid sequence shown in SEQ ID No. 2 or SEQ ID No. 4 or homologues thereof or a fragment selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain, having essentially the same biological activity, which process comprises the steps of

a) isolating a polynucleotide comprising a nucleotide sequence coding for an integrin subunit α10, or homologues thereof or a fragment having essentially the same biological activity,

b) constructing an expression vector comprising the isolated polynucleotide,

c) transforming a host cell with said expression vector,

d) culturing said transformed host cell in a culture medium under conditions suitable for expression of integrin subunit α10, or homologues or I domain or fragment thereof having essentially the same biological activity, in said transformed host cell, and, optionally,

e) isolating the integrin subunit α10, or homologues or fragments thereof having essentially the same biological activity, from said transformed host cell or said culture medium;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 3. (Withdrawn) A process of providing an integrin subunit α10, or homologues or fragment thereof having essentially the same biological activity, whereby said subunit is isolated from a cell in which it is naturally present;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 4. (Withdrawn) An isolated polynucleotide comprising a nucleotide coding for an integrin subunit α10, or for homologues or fragment thereof having essentially the same biological activity, which polynucleotide comprises essentially the nucleotide sequence shown in SEQ ID No. 2 or SEQ ID No. 4 or suitable parts thereof;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 5. (Withdrawn) An isolated polynucleotide or oligonucleotide which hybridises to a DNA or RNA coding for an integrin subunit α10, or for homologues or fragment thereof having essentially the same biological activity, wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α1;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 6. (Withdrawn) A vector comprising a polynucleotide or oligonucleotide coding for an integrin subunit α10, or for homologues or fragment thereof having essentially the same biological activity, which polynucleotide or oligonucleotide comprises essentially the nucleotide sequence shown in SEQ ID No. 2 or SEQ ID No. 4 parts thereof;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 7. (Withdrawn) A vector comprising a polynucleotide or oligonucleotide which hybridises to a DNA or RNA coding for an integrin subunit α10, or

for homologues or fragment thereof, wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α1;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 8. (Withdrawn) A cell containing the vector as defined claim 6.

Claim 9. (Withdrawn) A cell generated by steps a) to d) of the process as defined in claim 2, in which a polynucleotide or oligonucleotide coding for an integrin subunit α10, or for homologues or fragment thereof having essentially the same biological activity, which polynucleotide or oligonucleotide comprises the nucleotide sequence shown in SEQ ID No. 2 or SEQ ID No. 4 or parts thereof, has been stably integrated in the cell genome;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 10. (Withdrawn) Binding entities having the capability of binding specifically to an integrin subunit α10 comprising the amino acid sequence of SEQ ID No. 2 or SEQ ID No. 4, or to homologues or fragment thereof;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 11. (Withdrawn) Binding entities according to claim 10, which are chosen from the group comprising proteins, peptides, carbohydrates, lipids, and natural integrin binding ligands, and fragments thereof.

Claim 12. (Withdrawn) Binding entities according to claim 10, which are polyclonal or monoclonal antibodies, or fragments thereof.

Claim 13. (Withdrawn) A recombinant or isolated integrin heterodimer comprising a subunit $\alpha 10$ and a subunit b, in which the subunit $\alpha 10$ comprises essentially the amino acid sequence shown in SEQ ID No. 2 or SEQ ID No. 4, and homologues and a fragment thereof having essentially the same biological activity;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 14. (Withdrawn) A recombinant or isolated integrin heterodimer according to claim 13, wherein the subunit β is $\beta 1$.

Claim 15. (Withdrawn) A process of producing a recombinant integrin heterodimer comprising a subunit $\alpha 10$ and a subunit β, in which the subunit $\alpha 10$ comprises essentially the amino acid sequence shown in SEQ ID No. 2 and SEQ ID No. 4,

homologues and a fragment thereof having essentially the same biological activity, which process comprises the steps of

a) isolating one polynucleotide comprising a nucleotide sequence coding for a subunit α10 of an integrin heterodimer and, optionally, another polynucleotide comprising a nucleotide sequence coding for a subunit β of an integrin heterodimer, or polynucleotides or oligonucleotides coding for homologues or fragment thereof having essentially the same biological activity,

b) constructing an expression vector comprising said isolated polynucleotide coding for said subunit α10 optionally in combination with an expression vector comprising said isolated nucleotide coding for said subunit β,

c) transforming a host cell with said expression vector or vectors,

d) culturing said transformed host cell in a culture medium under conditions suitable for expression of an integrin heterodimer comprising a subunit α10 and a subunit β, or homologues or fragment thereof having essentially the same biological activity, in said transformed host cell, and, optionally,

e) isolating the integrin heterodimer comprising a subunit α10 and a subunit β, or homologues or fragment thereof having essentially the same biological activity, or the α10 subunit thereof from said transformed host cell or said culture medium;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 16. (Withdrawn) A process of providing a integrin heterodimer comprising a subunit α10 and a subunit β, or homologues or fragment thereof having essentially the same biological activity, whereby said integrin heterodimer is isolated from a cell in which it is naturally present;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 17. (Withdrawn) A cell containing a first vector, said first vector comprising a polynucleotide or oligonucleotide coding for a subunit α10 of an integrin heterodimer, or for homologues or parts thereof having essentially the same biological activity, which polynucleotide or oligonucleotide comprises essentially the nucleotide sequence shown in SEQ ID No. 2 or SEQ ID No. 4 or parts thereof, and a second vector, said second vector comprising a polynucleotide or oligonucleotide coding for a subunit β of an integrin heterodimer, or for homologues or fragment thereof having essentially the same biological activity;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 18. (Withdrawn) Binding entities having the capability of binding specifically to an integrin heterodimer comprising a subunit α10 and a subunit β, or to

homologues or fragment thereof having essentially the same biological activity, or an subunit α10 thereof, having essentially the same biological activity;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 19. (Withdrawn) Binding entities according to claim 18, wherein the subunit β is β1.

Claim 20. (Withdrawn) Binding entities according to claim 18, which are chosen among the group comprising proteins, peptides, carbohydrates, lipids, and natural integrin binding ligands, and fragments thereof.

Claim 21. (Withdrawn) Binding entities according to claim 18, which are polyclonal or monoclonal antibodies.

Claim 22. (Canceled)

Claim 23. (Previously Presented) A fragment of the integrin subunit α10, wherein the fragment is a peptide comprising the amino acid sequence SEQ ID No. 7.

Claim 24. (Currently Amended) A fragment of the integrin subunit α10, wherein the fragment is the amino acid sequence from about amino acid No. 952 to about amino acid No. ~~no.~~ 986 of SEQ ID No. 2.

Claim 25. (Currently Amended) A fragment of the integrin subunit α10, wherein the fragment is the amino acid sequence from about amino acid No. 140 to about amino acid No. ~~no.~~ 337 of SEQ ID No. 2.

Claim 26. (Withdrawn) A method of producing a fragment of the integrin subunit α10 wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain, which method comprises a sequential addition of amino acids containing protective groups.

Claim 27. (Withdrawn) A polynucleotide or oligonucleotide coding for a fragment selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain of the integrin subunit α10.

Claim 28. (Withdrawn) Binding entities having the capability of binding specifically to a fragment of the human integrin subunit α10 wherein the fragment is

selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 29. (Withdrawn) Binding entities according to claim 28, which are chosen from the group comprising proteins, peptides, carbohydrates, lipids, and natural integrin binding ligands, and fragments thereof.

Claim 30. (Withdrawn) Binding entities according to claim 28, which are polyclonal or monoclonal antibodies, or fragments thereof.

Claim 31. (Withdrawn) A method of using an integrin subunit α10 *in vitro* comprising using the amino acid sequence shown in SEQ ID No. 2, SEQ ID No. 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or a homologue or fragment of said integrin or subunit having essentially the same biologically activity, as a marker or target molecule of cells or tissues expressing said integrin subunit α10, wherein the cells or tissues are of animal including human origin;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 32. (Canceled)

Claim 33. (Withdrawn) A method of using an integrin subunit α10 *in vitro* comprising using the amino acid sequence shown in SEQ ID No. 2, SEQ ID No. 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or a homologue or fragment of said integrin or subunit having essentially the same biologically activity, as a marker or target molecule of cells or tissues expressing said integrin subunit α10, wherein the cells or tissues are of animal including human origin, whereby said fragment is a peptide comprising the amino acid sequence SEQ ID NO: 7.

Claim 34. (Withdrawn) A method of using an integrin subunit α10 *in vitro* comprising using the amino acid sequence shown in SEQ ID No. 2, SEQ ID No. 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or a homologue or fragment of said integrin or subunit having essentially the same biologically activity, as a marker or target molecule of cells or tissues expressing said integrin subunit α10, wherein the cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of No. of SEQ ID NO: 2.

Claim 35. (Withdrawn) A method of using an integrin subunit α10 *in vitro* comprising using the amino acid sequence shown in SEQ ID No. 2, SEQ ID No. 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or a homologue or fragment of said integrin or subunit having essentially the same biologically activity, as a marker or target molecule of cells or tissues expressing said integrin subunit α10, wherein the cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 140 to about amino acid no. 337 of SEQ ID NO: 1.

Claim 36. (Withdrawn) The method of claim 31, whereby the subunit β is β1.

Claim 37. (Withdrawn) The method of claim 31, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts and fibroblasts.

Claim 38. (Withdrawn) The method of claim 31, which process issued during pathological conditions involving said subunit α10.

Claim 39. (Withdrawn) The method of claim 38, which pathological conditions comprise damage of cartilage.

Claim 40. (Withdrawn) The method of claim 38, which pathological conditions comprise trauma, rheumatoid arthritis and osteoarthritis.

Claim 41. (Withdrawn) The method of claim 31, which is a process for detecting the formation of cartilage during embryonal development.

Claim 42. (Withdrawn) The method of claim 31, which is a process for detecting physiological or therapeutic reparation of cartilage.

Claim 43. (Withdrawn) The method of claim 31, which is a process for selection and analysis, or for sorting, isolating, or purification of chondrocytes.

Claim 44. (Withdrawn) The method of claim 31, which is a process for detecting regeneration of cartilage or chondrocytes during transplantation of cartilage or chondrocytes.

Claim 45. (Withdrawn) The method of claim 31, which is a process for in vitro studies of differentiation of chondrocytes.

Claim 46. (Withdrawn) A method of using binding entities having the capability of binding specifically to an integrin subunit $\alpha 10$ *in vitro*, comprising using an

amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit or to homologues or fragment thereof having essentially the same biological activity, as markers or target molecules of cells or tissues expressing said integrin subunit α10, wherein the cells or tissues are of animal including human origin;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 47. (Canceled)

Claim 48. (Withdrawn) A method of using binding entities having the capability of binding specifically to an integrin subunit α10 *in vitro*, comprising using an amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit or to homologues or fragment thereof having essentially the same biological activity, as markers or target molecules of cells or tissues expressing said integrin subunit α10, wherein the cells or tissues are of animal including human origin, whereby said fragment is a peptide comprising the amino acid sequence SEQ ID NO: 7.

Claim 49. (Withdrawn) A method of using binding entities having the capability of binding specifically to an integrin subunit α10 *in vitro*, comprising using an

amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit or to homologues or fragment thereof having essentially the same biological activity, as markers or target molecules of cells or tissues expressing said integrin subunit α10, wherein the cells or tissues are of animal including human origin, wherein said fragment comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of SEQ ID NO: 2.

Claim 50. (Withdrawn) A method of using binding entities having the capability of binding specifically to an integrin subunit α10 *in vitro*, comprising using an amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit or to homologues or fragment thereof having essentially the same biological activity, as markers or target molecules of cells or tissues expressing said integrin subunit α10, wherein the cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 140 to about amino acid No. 337 of SEQ ID NO: 2.

Claim 51. (Withdrawn) The method of claim 46, whereby the subunit β is β1.

Claim 52. (Withdrawn) The method of claim 46, comprising detecting the presence of an integrin subunit α10 comprising the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4 or of an integrin heterodimer comprising said subunit α10 and a

subunit β, or of homologues or fragment thereof having essentially the same biological activity;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 53. (Withdrawn) The method of claim 46, which process is a process for determining the differentiation-state of cells during embryonic development, angiogenesis, or development of cancer.

Claim 54. (Withdrawn) A method for detecting the presence of a integrin subunit α10, or of a homologue or fragment of said integrin subunit having essentially the same biological activity, on cells, comprising using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α1;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 55. (Withdrawn) The method of claim 54, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts and fibroblasts.

Claim 56. (Withdrawn) A method for detecting the presence of a integrin subunit α10, or of a homologue or fragment of said integrin subunit having essentially the same biological activity, on cells, comprising using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α1, whereby said fragment is a peptide selected from the group consisting of peptides of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 57. (Withdrawn) A method for detecting the presence of a integrin subunit α10, or of a homologue or fragment of said integrin subunit having essentially the same biological activity, on cells, comprising using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α1, whereby said fragment peptide comprising the amino acid sequence SEQ ID NO: 7.

Claim 58. (Withdrawn) A method for detecting the presence of a integrin subunit α10, or of a homologue or fragment of said integrin subunit having essentially the same biological activity, on cells, comprising using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID

NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α1, whereby said fragment comprises the amino acid sequence from about amino acid No. 952 to about amino acid no. 986 of SEQ. ID NO: 2.

Claim 59. (Withdrawn) A method for detecting the presence of a integrin subunit α10, or of a homologue or fragment of said integrin subunit having essentially the same biological activity, on cells, comprising using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α1, whereby said fragment comprises the amino acid sequence from about amino acid No. 140 to about amino acid No. 337 of SEQ ID NO: 1.

Claim 60. (Withdrawn) The method of claim 54, which is a process for determining the differentiation-state of cells during development, in pathological conditions, in tissue regeneration, or in therapeutic and physiological reparation of cartilage.

Claim 61. (Withdrawn) The method of claim 60, wherein the pathological conditions are any pathological conditions involving the integrin subunit α10.

Claim 62. (Withdrawn) The method of claim 61, whereby said pathological conditions are rheumatoid arthritis, osteoarthrosis or cancer.

Claim 63. (Withdrawn) The method of claim 60, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts and fibroblasts.

Claim 64. (Withdrawn) A method of determining the differentiation-state of cells during development *in vitro*, in pathological conditions, in tissue regeneration and in therapeutic and physiological reparation of cartilage, a polynucleotide or oligonucleotide chosen from the nucleotide sequence shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit $\alpha 10$.

Claim 65. (Withdrawn) The method of claim 64, whereby said polynucleotide or oligonucleotide is a polynucleotide or oligonucleotide coding for a peptide chosen form the group comprising peptides of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 66. (Withdrawn) The method of claim 65, whereby said polynucleotide or oligonucleotide is a polynucleotide or oligonucleotide coding for a peptide comprising the amino acid sequence SEQ ID No. 7.

Claim 67. (Withdrawn) The method of claim 65, whereby said peptide comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of SEQ ID No. 2.

Claim 68. (Withdrawn) The method of claim 65, whereby said peptide comprises the amino acid sequence from about amino acid no. 140 to about amino acid no. 337 of SEQ ID No. 2.

Claim 69. (Withdrawn) The method of claim 65, whereby said pathological conditions are any pathological conditions involving the integrin subunit $\alpha 10$.

Claim 70. (Withdrawn) The method of claim 69, whereby said pathological conditions are rheumatoid arthritis, osteoarthrosis or cancer.

Claim 71. (Withdrawn) The method of claim 69, whereby said pathological conditions are atherosclerosis or inflammation.

Claim 72. (Withdrawn) The method of claim 64, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts and fibroblasts.

Claim 73. (Withdrawn) A pharmaceutical composition comprising as an active ingredient a pharmaceutical agent or an antibody which is capable of using an integrin heterodimer comprising a subunit α10 and a subunit b, or the subunit α10 thereof, or a homologue of fragment of said integrin or subunit α10 having essentially the same biological activity, as a target molecule;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 74. (Withdrawn) A pharmaceutical composition according to claim 73, for use in stimulating, inhibiting or blocking the formation of cartilage, bone or blood vessels.

Claim 75. (Withdrawn) A pharmaceutical composition according to claim 73, for use in preventing adhesion between tendon/ligaments and the surrounding tissue after infection, inflammation and after surgical intervention where adhesion impairs the function of the tissue.

Claim 76. (Currently Amended) A vaccine comprising as an active ingredient an integrin heterodimer comprising a subunit α10 and a subunit b, or the subunit α10 thereof, or a homologue or a fragment of said integrin or subunit α10, or DNA or RNA coding for said integrin subunit α10;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 77. (Withdrawn) A method of using the integrin subunit α10 as a marker or target in transplantation of cartilage or chondrocytes *in vitro*.

Claim 78. (Withdrawn) A method of using binding entities having the capability of binding specifically to an integrin subunit α10 *in vitro* comprising binding the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit β or to homologues or fragment thereof having essentially the same biological activity, for promoting adhesion of chondrocytes and/or osteoblasts to surfaces of implants to stimulate osseointegration;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 79. (Withdrawn) A method of detecting the presence of integrin binding entities *in vitro*, comprising interacting an integrin heterodimer comprising a subunit α10

and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit having essentially the same biological activity, with a sample, thereby causing said integrin, subunit α10, or homologue or fragment thereof, to modulate the binding to its natural ligand or other proteins present in said sample;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 80. (Withdrawn) A method of studying consequences of the interaction of a human heterodimer integrin *in vitro*, comprising interacting a subunit α10 and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit having essentially the same biological activity, with an integrin binding entity and thereby initiating a cellular reaction;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 81. (Withdrawn) The method of claim 80, whereby the consequences of said interactions are measured as alterations in cellular functions.

Claim 82. (Withdrawn) A method of using DNA or RNA *in vitro*, comprising encoding an integrin subunit α10 or homologues or fragment thereof as a target molecule;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 83. (Withdrawn) The method of claim 82, whereby a polynucleotide or oligonucleotide hybridises to the DNA or RNA encoding an integrin subunit α10, or homologues or fragments thereof having essentially the same biological activity, and whereby said polynucleotide or oligonucleotide fails to hybridise to DNA or RNA encoding an integrin subunit α1.

Claim 84. (Withdrawn) A method of using a human heterodimer integrin *in vitro,* comprising using a subunit α10 and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit, or a DNA or RNA encoding an integrin subunit α10 or homologues or fragments thereof, as a marker or target molecule during angiogenesis;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 85. (Withdrawn) A pharmaceutical composition comprising as an active ingredient a pharmaceutical agent of antibody which is capable of stimulating cell surface expression of an integrin heterodimer comprising a subunit α10 and a subunit β, or the

subunit α10 thereof, or a homologue or fragment of said integrin or subunit α10 having essentially the same biological activity;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 86. (Withdrawn) A method of using a collagen binding integrin subunit α10 comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or a homologue or fragment of said integrin or subunit having essentially the same biologically activity, as a marker or target molecule of cells or tissues expressing said integrin subunit α10, which cells or tissues are of animal including human origin;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 87. (Canceled)

Claim 88. (Withdrawn) A method of using a collagen binding integrin subunit α10 comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or a homologue or fragment of said integrin or subunit having essentially the same biologically activity, as a marker or target molecule of cells or tissues expressing said integrin subunit α10, which

cells or tissues are of animal including human origin, whereby said fragment is a peptide comprising the amino acid sequence SEQ ID NO: 7.

Claim 89. (Withdrawn) A method of using a collagen binding integrin subunit α10 comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or a homologue or fragment of said integrin or subunit having essentially the same biologically activity, as a marker or target molecule of cells or tissues expressing said integrin subunit α10, which cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of SEQ ID NO: 2.

Claim 90. (Withdrawn) A method of using a collagen binding integrin subunit α10 comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or a homologue or fragment of said integrin or subunit having essentially the same biologically activity, as a marker or target molecule of cells or tissues expressing said integrin subunit α10, which cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 140 to about amino acid no. 337 of SEQ ID NO: 2.

Claim 91. (Withdrawn) The method of claim 86, whereby the subunit β is β1.

Claim 92. (Withdrawn) The method of claim 86, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts and fibroblasts.

Claim 93. (Withdrawn) The method of claim 86, wherein the method is used during pathological conditions involving said subunit α10.

Claim 94. (Withdrawn) The method of claim 93, wherein the pathological conditions comprise damage of cartilage.

Claim 95. (Withdrawn) The method of claim 93, wherein the pathological conditions comprise trauma, rheumatoid arthritis and osteoarthritis.

Claim 96. (Withdrawn) The method of claim 86, wherein the method is used for detecting the formation of cartilage during embryonal development.

Claim 97. (Withdrawn) The method of claim 86, wherein the method is used in detecting physiological or therapeutic reparation of cartilage.

Claim 98. (Withdrawn) The method of claim 86, wherein the method is used in detecting regeneration of cartilage or chondrocytes during transplantation of cartilage or chondrocytes.

Claim 99. (Withdrawn) A method of using binding entities having the capability of binding specifically to an integrin subunit α10 comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or to homologues or fragment thereof having essentially the same activity, as markers or target molecules of cells or tissues expressing said integrin subunit α10, which cells or tissues are of animal including human origin;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 100. (Canceled)

Claim 101. (Withdrawn) A method of using binding entities having the capability of binding specifically to an integrin subunit α10 comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or to homologues or fragment thereof having essentially the same activity, as markers or target molecules of cells or tissues expressing

said integrin subunit α10, which cells or tissues are of animal including human origin, whereby said fragment is a peptide comprising the amino acid sequence SEQ ID No. 7.

Claim 102. (Withdrawn) A method of using binding entities having the capability of binding specifically to an integrin subunit α10 comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or to homologues or fragment thereof having essentially the same activity, as markers or target molecules of cells or tissues expressing said integrin subunit α10, which cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 952 to about amino acid no. 986 of SEQ ID NO: 2.

Claim 103. (Withdrawn) A method of using binding entities having the capability of binding specifically to an integrin subunit α10 comprising using the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or to homologues or fragment thereof having essentially the same activity, as markers or target molecules of cells or tissues expressing said integrin subunit α10, which cells or tissues are of animal including human origin, whereby said fragment comprises the amino acid sequence from about amino acid no. 140 to about amino acid No. 337 of SEQ ID NO: 2.

Claim 104. (Withdrawn) The method of claim 99, whereby the subunit β is β1.

Claim 105. (Withdrawn) The method of claim 99, further comprising detecting the presence of an integrin subunit α10 comprising the amino acid sequence shown in SEQ ID NO: 2 or SEQ ID NO: 4, or of an integrin heterodimer comprising said subunit α10 and a subunit β, or of homologues or fragment thereof having essentially the same biologically activity;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 106. (Withdrawn) The method of claim 99, wherein the method is used for determining the differentiation-state of cells during embryonic development, angiogenesis, or development of cancer.

Claim 107. (Withdrawn) A method of detecting the presence of an integrin subunit α10, or of a homologue or fragment of said integrin subunit having essentially the same activity, on cells, using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α1;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 108. (Withdrawn) The method of claim 107, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts and fibroblasts.

Claim 109. (Canceled)

Claim 110. (Withdrawn) A method of detecting the presence of an integrin subunit α10, or of a homologue or fragment of said integrin subunit having essentially the same activity, on cells, using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α1, whereby said fragment comprising a peptide consisting of the amino acid sequence SEQ ID NO: 7.

Claim 111. (Withdrawn) A method of detecting the presence of an integrin subunit α10, or of a homologue or fragment of said integrin subunit having essentially the same activity, on cells, using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under

hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α1, whereby said fragment comprises the amino acid sequence from about amino acid No. 952 to about amino acid no. 986 of SEQ ID No. 2.

Claim 112. (Withdrawn) A method of detecting the presence of an integrin subunit α10, or of a homologue or fragment of said integrin subunit having essentially the same activity, on cells, using a polynucleotide or oligonucleotide chosen from the group comprising a polynucleotide or oligonucleotide shown in SEQ ID NO: 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit α1, whereby said fragment comprises the amino acid sequence from about amino acid No. 140 to about amino acid No. 337 of SEQ ID NO: 2.

Claim 113. (Withdrawn) The method of claim 107, wherein the method is used for determining the differentiation-state of cells during development, in pathological conditions, in tissue regeneration or in therapeutic and physiological reparation of cartilage.

Claim 114. (Withdrawn) The method of claim 113, wherein the pathological conditions are any pathological conditions involving the integrin subunit α10.

Claim 115. (Withdrawn) The method of claim 113, whereby said pathological conditions are rheumatoid arthritis, osteoarthrosis or cancer.

Claim 116. (Withdrawn) The method of claim 113, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts, and fibroblasts.

Claim 117. (Withdrawn) A method of determining the differentiation-state of cells during development, in pathological conditions, in tissue regeneration, and in therapeutic and physiological reparation of cartilage, comprising using a polynucleotide or oligonucleotide chosen from the nucleotide sequence shown in SEQ ID No. 2 as a marker under hybridisation conditions wherein said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding an integrin subunit $\alpha 10$.

Claim 118. (Withdrawn) The method of claim 117, whereby said polynucleotide or oligonucleotide is a polynucleotide or oligonucleotide coding for a peptide chosen from the group comprising peptides of the cytoplasmic domain, the I-domain, and the spliced domain.

Claim 119. (Withdrawn) The method of claim 117, whereby said polynucleotide or oligonucleotide is a polynucleotide or oligonucleotide coding for a peptide comprising the amino acid-sequence SEQ ID No. 7.

Claim 120. (Withdrawn) The method of claim 117, whereby said polynucleotide or oligonucleotide is a polynucleotide or oligonucleotide coding for a peptide comprising the amino acid sequence from about amino acid no. 952 to about amino. 986 of SEQ ID NO: 2.

Claim 121. (Withdrawn) The method of claim 117, whereby said polynucleotide or oligonucleotide is a polynucleotide or oligonucleotide coding for a peptide comprising the amino acid sequence from about amino acid no. 140 to about amino acid no. 337 of SEQ ID NO: 2.

Claim 122. (Withdrawn) The method of claim 117, whereby said pathological conditions are any pathological conditions involving the integrin subunit $\alpha 10$.

Claim 123. (Withdrawn) The method of claim 117, whereby said pathological conditions are rheumatoid arthritis, osteoarthrosis, or cancer.

Claim 124. (Withdrawn) The method of claim 117, whereby said pathological conditions are atherosclerosis or inflammation.

Claim 125. (Withdrawn) The method of claim 117, whereby said cells are chosen from the group comprising chondrocytes, smooth muscle cells, endothelial cells, osteoblasts, and fibroblasts.

Claim 126. (Previously Presented) The integrin subunit α10 as defined in claim 1, wherein the integrin subunit α10 is a marker or target in transplantation of cartilage or chondrocytes.

Claim 127. (Withdrawn) A method of using binding entities having the capability of binding specifically to an integrin subunit α10 comprising using the amino acid sequence shown in SEQ ID No. 2 or SEQ ID No. 4, or an integrin heterodimer comprising said subunit α10 and a subunit β, or to homologues or fragments thereof having essentially the same biological activity, for promoting adhesion of chondrocytes, and/or osteoblasts to surfaces of implants to stimulate osseointegration;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 128. (Withdrawn) A method of using an integrin heterodimer as a target for anti-adhesive drugs or molecules in tendon, ligament, skeletal muscle, or other tissues, comprising using an integrin subunit α10 and a subunit β, or the subunit α10 and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit α10 having essentially the same biological activity, as a target for anti-adhesive drugs or molecules in tendon, ligament, skeletal muscle, or other tissues where adhesion impairs the function of the tissue;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 129. (Withdrawn) A method of stimulating, inhibiting, or blocking the formation of cartilage or bone, comprising administering to a subject a suitable amount of a pharmaceutical agent or an antibody which is capable of using an integrin heterodimer comprising a subunit α10 and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit α10 having essentially the same biological activity, as a target molecule;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 130. (Withdrawn) A method of preventing adhesion between tendon/ligaments and the surrounding tissue after infection, inflammation, and after

surgical intervention where adhesion impairs the function of the tissue, comprising administering to a subject a suitable amount of a pharmaceutical agent or an antibody which is capable of using an integrin heterodimer comprising a subunit α10 and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit α10 having essentially the same biological activity, as a target molecule;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 131. (Withdrawn) A method of stimulating extracellular matrix synthesis and repair by activation or blockage of an integrin heterodimer comprising using a subunit α10 and a subunit β or of the subunit α10 thereof or of a homologue or fragment of said integrin, or subunit α10 having essentially the same biological activity;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 132. (Withdrawn) A DNA encoding an integrin subunit α10 or homologues or fragment thereof as a target molecule;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 133. (Withdrawn) The method according to claim 132, whereby a polynucleotide or oligonucleotide hybridises to the DNA or RNA encoding an integrin subunit α10 or homologues or fragments thereof and whereby said polynucleotide or oligonucleotide fails to hybridise to a DNA or RNA encoding en integrin subunit α1;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 134. (Withdrawn) A method of using a human heterodimer integrin comprising using a subunit α10 and a subunit β, or the subunit α10 thereof, or a homologue or fragment of said integrin or subunit having essentially the same biological activity, or a DNA or RNA encoding an integrin subunit α10 or homologues or fragments thereof, as a marker or target molecule during angiogenesis;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 135. (Withdrawn) An RNA encoding an integrin subunit α10 or homologues or fragments thereof as a target molecule;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 136. (Withdrawn) A method of using DNA or RNA encoding an integrin subunit α10 or homologues or fragment thereof as target molecules comprising:

choosing cells expressing the integrin subunit α10 or homologues or fragments thereof encoded by the DNA or RNA and assaying for the presence of the DNA or RNA in the cells;

wherein the fragment is selected from the group consisting of the cytoplasmic domain, the I-domain and the spliced domain.

Claim 137. (Withdrawn) A method of using an integrin subunit α10 as a marker or target comprising:

choosing cells or tissues expressing subunit α10 and assaying for the presence of subunit α10 in the cells.